5. SAMPLE CONTROL

Strict sample control is required of any project. Sample control assures that unique sample identifiers are used for separate samples. It also covers the documentation of sample collection information so that a sampling event may be reconstructed at a later date. The following sections detail unique sample designation, sample handling, including shipping, and radiological screening of samples

5.1 Sample Designation

A systematic identification code is crucial for the unique identification of samples. Uniqueness is required for maintaining consistency within a project and preventing the same identification code from being assigned to more than one sample.

5.1.1 Sample Identification Code

A ten character identification code will be used for this project. The first through third character of the code refers to sample origination information. For example, **3BL** would be a sample from the WAG 3 Big Lost River well set drilling. The next five numbers designate the sequential sample number for the project. The last two characters of this set will be used to designate field duplicate samples (i.e., **01**, **02**). The final two characters identify a particular analysis. Refer to the SAP tables in Appendix A for specific analysis type designations.

An example of the numbering is given for a sample collected during well set drilling. Such a sample might be designated as "**3SL00301GX**," where (from left to right):

- **3SL** designates the sample as originating from the WAG 3 sewage (treatment) lagoon set well drilling
- **003** designates the sequential sample number (in this case the third sample collected)
- **01** designates the type of sample (**01** = original, **02** = field duplicate)
- **GX** designates the analysis to be performed (in this case the geotechnical suite).

A SAP table/database will be used to record all pertinent information associated with each sample identification code (see Appendix A).

5.1.2 Sampling and Analysis Plan Table/Database

5.1.2.1 General. A SAP table format was developed to simplify the presentation of the sampling scheme for project personnel. The following sections describe the information recorded in the SAP table/database, which is presented in Appendix A.

5.1.2.2 Sample Description Fields. The sample description fields contain information relating individual sample characteristics.

Sampling Activity—The sampling activity field contains the first six characters of the assigned sample number. The sample number in its entirety will be used to link information from other sources (field data, analytical data, etc.) to the information in the SAP table for data reporting, sample tracking,

and completeness reporting. The sample number will also be used by the analytical laboratory to track and report analytical results.

Sample Type—Data in this field will be selected from the following:

- REG for a regular sample
- QC for a QC sample.

Media—Data in this field will be selected from the following:

- SOIL for regular and QA/QC samples of soil, alluvium, and interbed sediments
- PERCHED WATER for water collected from the perched water zones.
- WATER for regular and QA/QC samples of pore, perched or groundwater.

Collection Type—Data in this field will be selected from the following:

- GRAB for grab samples (undisturbed and disturbed core sample)
- COMP for composite samples
- TBLK for trip blanks
- FBLK for field blanks
- RNST for rinsates
- DUP for duplicates.

Sampling Method—Data in this field is related to what the sample is taken from. For example, **LYS** designates a suction lysimeter sample. This field may be left blank.

5.1.2.3 Planned Date. This date is related to the planned sample collection start date.

5.1.2.4 Sample Location Fields. This group of fields pinpoints the exact location for the sample in three-dimensional space, starting with the general Area, narrowing the focus to an exact Location geographically, and then specifying the Depth in the depth field.

Area—The area field identifies the general sample collection area. This field should contain the standard identifier for the INEEL area being sampled. For this investigation, samples are being collected from sites designated as the WAG 3 Tank Farm and Percolation Ponds. The area field identifier will correspond to these two sites.

Location—This field generally contains program specific information such as borehole or well identification number, but may contain geographical coordinates, x-y coordinates, building numbers, or other location identifying details. Data in this field will normally be subordinate to the area. This information is included on the labels generated by the SMO to aid field sampling personnel.

Type of Location—The type of location field supplies descriptive information concerning the exact sample location. Information in this field may overlap that in the location field, but it is intended to add detail to the location.

Depth—The depth of a sample location is the distance in feet from ground surface or a range in feet from the surface.

5.1.2.5 Analysis Types

AT1–AT20—These fields indicate analysis types (radiological, chemical, geotechnical, etc.) and number to be collected for each sample number. Space is provided at the bottom of the form to clearly identify each type. A standard abbreviation is also provided for each analysis below the AT cell.

5.2 Sample Handling

Analytical samples for laboratory analyses will be collected in precleaned containers and packaged according to American Society for Testing and Materials, or EPA-recommended procedures. Samples for undisturbed geotechnical and physical analyses may be sent in lexan liners cut to length and capped. In this case, plastic end caps will be taped on to prevent sample loss during transit to the lab. The QA samples will be included to satisfy the QA/QC requirements for the field operation as outlined in the QAPjP. Qualified (SMO approved) analytical and testing laboratories will analyze the samples.

5.2.1 Sample Preservation

Soil samples will be preserved as soon as practical after sample collection. All soil, rinsate, and QA/QC samples will be placed in coolers containing frozen, reusable ice packs immediately after sample collection, survey by the RCT, and logging by the field geologist. Samples requiring cooling, will be maintained at 4°C (39°F) for preservation immediately after sample collection through sample shipment as required. Samples requiring chemical preservation (i.e., addition of nitric acid to metals) will be transported to CFA-625 for preservation. After preservation sample bottles will have CoC seals attached.

5.2.2 Chain-of-Custody Procedures

The CoC procedures will be followed per MCP-244, "*Chain of Custody, Sample Handling and Packaging*" (INEEL 1997b) and the QAPjP. Sample containers will be stored in a secured area accessible only to the field team members.

5.2.3 Transportation of Samples

Samples will be shipped in accordance with the regulations issued by the DOT (49 CFR Parts 171 through 178) and EPA sample handling, packaging and shipping methods (40 CFR 261.c.3). Samples will be packaged in accordance with the requirements set forth in MCP-244.

5.2.3.1 Custody Seals. Custody seals will be placed on all shipping containers in such a way as to ensure that tampering or unauthorized opening does not compromise sample integrity. Clear plastic tape will be placed over the seals to ensure that the seals are not damaged during shipment.

5.2.3.2 On-Site and Off-Site Shipping. An on-site shipment is any transfer of material within the perimeter of the INEEL. Site-specific requirements for transporting samples within INEEL boundaries and those required by the shipping and receiving department will be followed. Shipment

within the INEEL boundaries will conform to DOT requirements as stated in 49 CFR. Off-site sample shipment will be coordinated with Packaging and Transportation personnel, as necessary, and will conform to all applicable DOT requirements.

5.3 Radiological Screening

Following sample collection, samples will be surveyed for external contamination and field screened for radiation levels. If necessary, a gamma screening sample will be collected and submitted to either the INTEC Analytical Laboratory or the Radiation Measurements Laboratory (RML), located at TRA-620, for a 20-minute analysis prior to shipment off-site. Determination of the need for radiological screening will be made by the RCT in the field.

If it is determined that the contact readings on the samples exceed 200 mR/hour beta/gamma, then the samples will be held for analysis in the INTEC Remote Analytical Laboratory.

6. QUALITY ASSURANCE/ QUALITY CONTROL

A draft revision to the Quality Assurance Project Plan (QAPjP) has been developed for INEEL WAGs 1, 2, 3, 4, 5, 6, 7, 10, and the Inactive Sites Department (DOE/ID, 2000b). This plan pertains to all environmental, geotechnical, geophysical, and radiological testing, analysis, and data review. This section details the field elements of the QAPjP to support field operations during the implementation of this FSP.

6.1 Project Quality Objectives

QA objectives specify what measurements must meet to produce acceptable data for a project. The technical and statistical qualities of those measurements must be properly documented. Precision, accuracy, and completeness are quantitative parameters that must be specified for physical/chemical measurements. Comparability and representativeness are qualitative parameters.

QA objectives for this project will be met through a combination of field and laboratory checks. Field checks will consist of collecting field duplicates, equipment blanks, and field blanks. Laboratory checks consist of initial and continuing calibration samples, laboratory control samples, matrix spikes, and matrix spike duplicates. Laboratory QA is detailed in their QAPjP and is beyond the scope of this FSP.

6.1.1 Field Precision

Field precision is a measure of the variability not due to laboratory or analytical methods. The three types of field variability or heterogeneity are; spatially within a data population, between individual samples, and within an individual sample. Although the heterogeneity between and within samples can be evaluated using duplicate and/or sample splits, overall field precision will be calculated as the relative percent difference (RPD) between two measurements or relative standard deviation (RSD) between three or more measurements. The RPD or RSD will be calculated as indicated in the QAPjP, for duplicate samples during the data validation process. Precision goals have been established for inorganic Contract Laboratory Program (CLP) methods by the EPA (EPA 1993) and for radiological analyses in the SMO TPR-80, "Radiological Data Validation" (LITCO 1994c).

Duplicate samples to assess precision will be co-located and collected by field personnel at a minimum frequency of one duplicate for every 20 samples or one duplicate sample per well set, whichever is less, with the location of the QA/QC samples being rotation between sampling events so that each new well will have at least one QA/QC sample before the end of Phase II. These duplicates will be collected for both water (blanks) and soil (interbed) matrices. Sample identifications are provided in the SAP table presented in Appendix A. SAP tables and QA/QC sampling for the longer term sampling, please refer to the long term monitoring plan (DOE/ID-10746, 2000).

6.1.2 Field Accuracy

Cross contamination of the samples during collection or shipping could yield incorrect analytical results. To assess the occurrence of any cross contamination events, equipment blanks, and field blanks will be collected to evaluate any potential impacts. The goal of the sampling program is to eliminate any cross contamination associated with sample collection or shipping. To assist in this, boreholes will be drilled from the least contaminated area (south end of the facility) to the most contaminated (around the Tank Farm). Analytical results for these samples will be evaluated during the data validation process by

sample delivery group. If necessary, the data will be blank-qualified to indicate the presence of cross contamination.

Field personnel will collect rinseate, equipment, and field blanks during the course of the project. Trip blanks will be collected whenever volatile organic compounds are scheduled for collection. The rinseate, equipment, and field blanks will be collected at a frequency of one every 20 samples or once for every sample day, which ever is less. Sample identifications are provided in the Sampling and Analysis Plan Table presented in Appendix A.

Performance evaluation samples will be submitted per MCP-2864 (INEEL 1997c). For this FSP one PE sample will be submitted with the Phase I sampling and one with the initial Phase II sampling.

6.1.3 Representativeness

Representativeness is evaluated by assessing the accuracy and precision of the sampling program and expressing the degree to which samples represent actual site conditions. In essence, representativeness is a qualitative parameter that addresses whether the sampling program was properly designed to meet the DQO's. The representativeness criterion is best satisfied by confirming that sampling locations are selected properly and a sufficient number of samples are collected to meet the requirements stated in the DQO's. The DQO's are identified in Section 3.1 of this FSP.

6.1.4 Comparability

Comparability is a qualitative measure of the confidence with which one data set can be compared to another. These data sets include data generated by different laboratories performing this work, data generated by laboratories in previous studies, data generated by the same laboratory over a period of several years, or data obtained using differing sampling techniques or analytical protocols. For field aspects of this program, data comparability will be achieved using standard methods of sample collection and handling. Procedures identified to standardize the sample collection and handling included TPR-56, "Groundwater Sampling" (BBWI 2000a), TPR-61 "Soil Sampling", and MCP-244 "Chain of Custody, Sample Handling, and Packaging for CERCLA Activities" (INEEL 1997b)

6.1.5 Completeness

Field completeness will be assessed by comparing the number of samples collected to the number of samples planned. Field sampling completeness is affected by such factors as equipment and instrument malfunctions and insufficient sample recovery. Completeness can be assessed following data validation and reduction. The completeness goal for this project is 100% for critical activities and 90% for noncritical activities. A critical activity for this project is defined as the successful installation of a lysimeter, tensiometer, or monitoring well. Non-critical activities are defined as the successful collection of an individual sample. All individual samples from performance measurement point wells that contain enough water to collect a sample are considered critical.

6.2 Field Data Reduction

The reduction of field data is an important task to ensure that errors in sample labeling and documentation have not been made. This includes cross-referencing the SAP Table presented in Appendix A with sample labels, log books, and the CoC forms. Prior to sample shipment to the laboratory, field personnel will ensure that all field information is properly documented.

6.3 Data Validation

All laboratory generated data will be validated to Level A. Data validation will be performed in accordance with Technical Procedure (TPR)-79, "Levels of Analytical Method Data Validation" (INEEL 1995). Field generated data (e.g., matric potential measurements and water levels) will be validated through the use of properly calibrated instrumentation, comparing and cross checking data with independently gathered data, and recording data collection activities in a bound field logbook.

6.4 QA Objectives for Measurement

The QA objectives are specifications that the monitoring and sampling measurements identified in the QAPjP must meet to produce acceptable data for the project. The technical and statistical quality of these measurements must be properly documented. Precision, accuracy, method detection limits, and completeness must be specified for hydraulic and chemical measurements. Specific QA objectives are specified in the Quality Assurance Project Plan for Waste Area Groups 1, 2, 3, 4, 5, 6, 7, 10, and Inactive Sites (DOE-ID 2000e).

7. PROJECT ORGANIZATION AND RESPONSIBILITIES

The organizational structure for this project reflects the resources and expertise required to perform the work, while minimizing the risks to worker health and safety. As outlined in the FFA/CO each of the three signatory agencies (DOE, EPA, IDHW/DEQ) has assigned a WAG Project Manager. The WAG Project Managers responsibility is to oversee the effective implementation of actions stated in final action documents (i.e., the INTEC OU 3-13 ROD). This section is divided into two subsections that outline the responsibilities of key BBWI work-site personnel only. Section 7.1 discusses key personnel who will be directly associated with the job-site (i.e., on-site personnel). Section 7.2 discusses those positions that will supply support for the activities in the field but are not required to be on-site. Job titles of the individuals who will be filling key roles at the work site, and lines of responsibility and communication are shown on the chart in Figure 7-1.

7.1 Job-Site Personnel

7.1.1 Project Manager

The project manager (PM) coordinates all document preparation, field, laboratory, and modeling activities associated with this project and is responsible for the overall scope, schedule and budget of this project. The PM shall ensure that all activities conducted during the project comply with the following:

- INTEC site director requirements as outlined in MCP-2798, "*Maintenance Work Control*" [INEEL 1998b] and MCP-3003, "*Performing Pre-Job Briefings and Post-Job Reviews*" [INEEL 1998a]);
- MCPs and program requirements directives (PRDs);
- All applicable Occupational Safety and Health Administration (OSHA), EPA, DOE, U.S. Department of Transportation (DOT), and State of Idaho requirements;
- The QAPjP, the project HASP, the project waste management plan (WMP) and this FSP. The PM is also

The PM will oversee preparation, review, and implementation of this FSP to ensure work is performed as planned. The PM is responsible for (1) developing resource loaded, time-phased control account plans based on the project technical requirements, budgets, and schedules, and (2) assigning project tasks. Other functions and responsibilities of the PM related to completion of field activities include the following:

- Developing the site-specific plans required by the Environmental Restoration (ER) program such as work plans, environmental safety and health (ES&H) plans, SAPs, etc.
- Ensuring that project activities and deliverables meet schedule and scope requirements as described in the FFA/CO Attachment A "Action Plan for Implementation of the Federal Facility Agreement and Consent Order" (DOE-ID 1991) and applicable guidance
- Coordinating and interfacing with units within the program support organization on issues relating to quality assurance (QA), ES&H, and National Environmental Policy Act (NEPA) support for the project

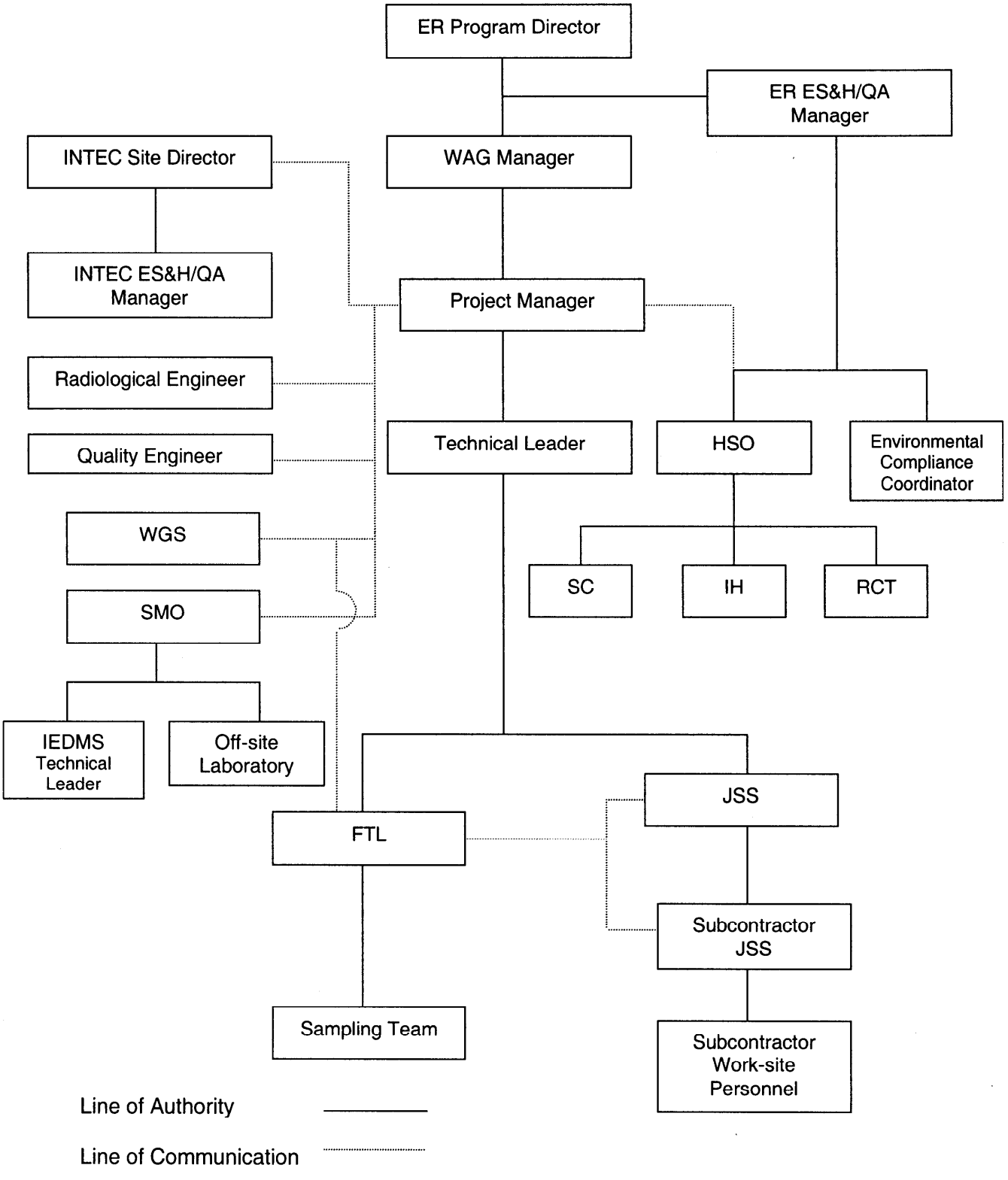

Figure 7-1. Project organizational structure.

- Coordinating the site-specific data collection, review for technical adequacy, and data input to an approved database such as the Environmental Restoration Information System (ERIS)

- Coordinating and interfacing with subcontractors to ensure milestones are met, adequate management support is in place, technical scope is planned and executed appropriately, and project costs are kept within budget.

7.1.2 Technical Lead

The Technical Lead (TL) is assigned by the PM to provide technical expertise and oversees the preparation, review, and implementation of the FSP to ensure work is technically correct. The TL works with the PM to ensure that:

- Site-specific plans required by the ER program such as work plans, environmental safety and health (ES&H) plans, SAPs, etc. are prepared

- Activities and deliverables meet schedule and scope requirements as described in the FFA/CO Attachment A "Action Plan for Implementation of the Federal Facility Agreement and Consent Order" (DOE-ID 1991) and applicable guidance.

- Resolves issues relating to quality assurance (QA), ES&H, and National Environmental Policy Act (NEPA) support for the project.

The TL may function as the FTL at the job site. The TL is the primary contact for any questions related to the various work tasks associated with this project.

7.1.3 Field Team Leader

The Field Team Leader (FTL) represents the ER organization at the job site with delegated responsibility for the safe and successful completion of the project. The FTL works with the PM to manage field sampling operations, and execution of the work plan. The FTL enforces work-site control, documents activities, and may conduct the daily safety briefings at the start of the shift. Health and safety issues must be brought to the attention of the FTL.

If the FTL leaves the job site, an alternate individual will be appointed to act as the FTL. Persons who act as the FTL on the job site must meet all the FTL training requirements as outlined in the project HASP. The identity of the acting FTL shall be conveyed to work-site personnel, recorded in the FTL logbook, and communicated to the INTEC director, or designee, when appropriate.

The FTL shall comply with the requirements outlined in MCP-3003, "Performing Pre-Job Briefings and Post-Job Reviews" by completing the briefings and reviews, and submitting the documentation to the INTEC site director and ER Environment Safety & Health/Quality Assurance (ES&H/QA) manager. The FTL shall complete the Job Requirements Checklist (JRC) as per MCP-2798, "Maintenance Work Control."

The FTL shall be responsible for ensuring compliance with waste management requirements and coordinate such activities with the Environmental Compliance Coordinator and/or designee.

7.1.4 Health and Safety Officer

The Health and Safety Officer (HSO) is the person located at the work site who serves as the primary contact for health and safety issues. The HSO shall assist the FTL on all aspects of health and safety (which includes complying with the Enhanced Work Planning process), and is authorized to stop work at the work site if any operation threatens worker or public health and/or safety. The HSO may be assigned other responsibilities, as stated in other sections of the project HASP, as long as they do not interfere with the primary responsibilities stated here. The HSO is authorized to verify compliance to the HASP, conduct inspections, monitor decontamination procedures, and require and monitor corrective actions, as appropriate. Other ES&H professionals at the work site (safety coordinator [SC], industrial hygienist [IH], radiological control technician [RCT], radiological engineer, environmental compliance coordinator, and facility representative[s]), may support the HSO, as necessary.

Persons assigned as the HSO, or alternate HSO, must be qualified (per the OSHA definition) to recognize and evaluate hazards, and will be given the authority to take or direct actions to ensure that workers are protected. While the HSO may also be the IH, SC, or in some cases the FTL (depending on the hazards, complexity and size of the activity involved, and required concurrence from the ER ES&H/QA manager) at the work site, other task-site responsibilities of the HSO must not conflict (philosophically or in terms of significant added volume of work) with the role of the HSO at the work site.

If it is necessary for the HSO to leave the work site, an alternate individual will be appointed by the HSO to fulfill this role. The identity of the acting HSO will be recorded in the FTL logbook, and work-site personnel will be notified.

7.1.5 Industrial Hygienist

The assigned Industrial Hygienist (IH) is the primary source for information regarding nonradiological hazardous and toxic agents at the task site. The IH shall assist the FTL in completing the JRC and assesses the potential for worker exposures to hazardous agents according to the contractor *Safety and Health Manual* (INEEL 1997e), MCPs, and accepted industry IH practices and protocol. By participating in work-site characterization, the IH assesses and recommends appropriate hazard controls for the protection of work-site personnel, operates and maintains airborne sampling and monitoring equipment, reviews for effectiveness, and recommends and assesses the use of personal protective equipment (PPE) required in the project HASP (recommending changes as appropriate).

Following an evacuation, the IH, in conjunction with other recovery team members, will assist the FTL in determining whether conditions exist for safe work-site reentry as described in the project HASP. Personnel showing health effects (signs and symptoms) resulting from possible exposure to hazardous agents will be referred to an Occupational Medical Program (OMP) physician by the IH, their supervisor, or the HSO. The IH may have other duties at the work site, as specified in the project HASP, or in PRDs and/or MCPs. During emergencies involving hazardous materials, airborne sampling, and monitoring results will be coordinated with members of the Emergency Response Organization.

7.1.6 Radiological Control Technician

The assigned Radiological Control Technician (RCT) is the primary source for information and guidance on radiological hazards. The RCT will be present at the job site during any work operations when a radiological hazard to personnel may exist or is anticipated. The RCT shall also assist the FTL in completing the JRC. Responsibilities of the RCT include radiological surveying of the work site, equipment, and samples; providing guidance for radioactive decontamination of equipment and

personnel; and accompanying the affected personnel to the nearest INEEL medical facility for evaluation if significant radiological contamination occurs. The RCT must notify the FTL of any radiological occurrence that must be reported as directed by the *INEEL Radiological Control Manual* (INEEL 1997f). The RCT may have other duties at the job site as specified in the project HASP, or in PRDs and/or MCPs.

7.1.7 Field Geologist

The field geologist will be responsible for the proper identification and logging of all collected core samples. In consultation with the PM, and FTL, the field geologist will recommend optimum locations for borehole instrumentation based on core and geophysical data. The field geologist will also oversee all downhole instrumentation installation performed by a subcontractor (i.e., drilling contractor).

7.1.8 Job-site Supervisor

The job-site supervisor (JSS) serves as the representative for the Facilities, Utilities, and Maintenance (FUM) Department, Site Services Branch at the task site. The JSS is the supervisor of crafts and other FUM personnel assigned to work at the job site. The JSS is the interface between FUM and ER, and works closely with the FTL at the work site to ensure that the objectives of the project are accomplished in a safe and efficient manner. The JSS and FTL work as a team to accomplish day-to-day operations at the job site, identify and obtain additional resources needed at the job site, and interact with the HSO, IH, SC, RCT, and/or radiological engineer on matters regarding health and safety. The JSS, like the FTL, must be informed about any health and safety issues that arise at the work site and may stop work at the job site if an unsafe condition exists. The JSS also shares the FTL's responsibility for daily prejob briefings.

7.1.9 Subcontractor Job-site Supervisor

A subcontractor JSS serves as the subcontractor safety representative at the work site. The subcontractor JSS may also serve as the subcontractor PM. The subcontractor JSS is the subcontractor field supervisor for subcontractor personnel assigned to work at the job site. The subcontractor JSS and FTL work as a team to accomplish day-to-day operations at the work site, identify and obtain additional resources needed at the work site, and interact with the HSO, IH, SC, RCT, and/or radiological engineer on matters regarding health and safety. The subcontractor JSS, like the FTL, must be informed about any health and safety issues that arise at the work site and may stop work at the job site if an unsafe condition exists. The subcontractor JSS will provide information to the FTL regarding the nature of their work for input at the daily prejob briefing.

7.1.10 Sampling Team

The sampling team will perform the onsite tasks necessary to collect, package, and ship samples. Tasks may include the physical collection of sample material, completion of chain-of-custody (CoC) and shipping request forms, and proper packaging of samples in accepted shipping containers (properly labeled and sealed coolers). The size and makeup of the sampling team will be dependent on the extent of the sampling task. The IH and RCT will support the sampling team when sampling is performed inside the contamination area. The sampling team may be lead by the FTL or a designated Sample Team Lead (STL).

7.1.11 Work-site personnel

All work-site personnel shall understand and comply with the requirements of the project HASP. The FTL or JSS will brief work-site personnel at the start of each shift. During the prejob briefing all daily tasks, associated hazards, engineering and administrative controls, required PPE, work control documents, and emergency conditions and actions will be discussed. Input from the project HSO, IH, and RCT, and/or radiological engineer to clarify task health and safety requirements will be provided. All personnel are encouraged to ask questions regarding site tasks and provide suggestions on ways to perform required tasks in a more safe and effective manner based on the lessons learned from previous days' activities.

Once at the job site, personnel are responsible for identifying any potentially unsafe situations or conditions to the FTL, JSS, or HSO for corrective action. **All work-site personnel are authorized to stop work immediately if they perceive that an unsafe condition poses an imminent danger. They must then notify the FTL, JSS, or HSO of the unsafe condition.**

7.2 Supporting Personnel

7.2.1 Environmental Restoration Director

The environmental restoration (ER) director has ultimate management and operation (M&O) contractor responsibility for the technical quality of all projects, maintaining a safe environment, and the safety and health of all personnel during field activities performed by or for the ER program. The ER director provides technical coordination and interfaces with the DOE-ID. The ER director ensures that:

- Project/program activities are conducted according to all applicable federal, state, local, and company requirements and agreements
- Program budgets and schedules are approved and monitored to be within budgetary guidelines
- Personnel, equipment, subcontractors, and services are available
- Direction is provided for the development of tasks, evaluation of findings, development of conclusions and recommendations, and production of reports.

7.2.2 INTEC Site Director

The INTEC site director has the authority and responsibility to ensure proper ownership review of all activity within the INTEC facility for all work processes and work packages including, but not limited to, the following:

- Establishing and executing monthly, weekly, and daily operating plans
- Executing the INTEC ES&H/QA program
- Executing the Integrated Safety Management System for INTEC
- Executing the Enhanced Work Planning for INTEC

- Executing the Voluntary Protection Program in the area
- All environmental compliance within the area
- Executing that portion of the voluntary compliance order that pertains to the area
- Correcting the root cause functions of the accident investigation in the area
- Correcting the root cause functions of the voluntary compliance order for the area.

7.2.3 ER S&H/QA Manager

The ER Safety & Health /Quality Assurance (S&H/QA) manager or designee is responsible for ensuring that ES&H oversight is provided for all ER programs and projects. This position reports to and is accountable to the ER director. The ER S&H/QA manager performs line management review, inspections, and oversight in compliance with MCP-2727, "Performing Safety Reviews" (INEEL 1998c). Project or program management shall bring all S&H/QA concerns, questions, comments, and disputes that cannot be resolved by the HSO or one of the assigned ES&H professionals to the ER S&H/QA manager or respective compliance officer.

7.2.4 INTEC S&H/QA Manager

The INTEC S&H/QA manager or designee is responsible for ensuring that ES&H oversight is provided for WAG 3 ER projects performed at or adjacent to the INTEC facility. This position reports to and is accountable to the INTEC site director. The INTEC S&H/QA manager performs line management review, inspections, and oversight in compliance with MCP-2727. Project or program management shall bring all S&H/QA concerns, questions, comments, and disputes that cannot be resolved by the HSO or one of the assigned ES&H professionals to the ER S&H/QA manager or to the INTEC S&H/QA manager.

7.2.5 Safety Coordinator

The assigned Safety Coordinator (SC) reviews work packages, periodically observes work-site activity, assesses compliance with the contractor *Safety and Health Manual*, signs safe work permits, advises the FTL on required safety equipment, answers questions on safety issues and concerns, and recommends solutions to safety issues and concerns that arise at the work site. The SC shall assist the FTL in completing the JRC. The SC may have other duties at the work site as specified in the project HASP, or in PRDs and/or MCPs. The fire protection engineer's function is included under the SC designation, and is the person assigned to review work packages and perform field assessments for fire protection controls.

7.2.6 Radiological Engineer

The radiological engineer is the primary source for information and guidance relative to the evaluation and control of radioactive hazards at the work site. If a radiological hazard exists or occurs at the job site, the radiological engineer makes recommendations to minimize health and safety risks to work-site personnel. Responsibilities of the radiological engineer include: (1) performing radiation exposure estimates and as low as reasonably achievable (ALARA) evaluations, (2) identifying the type(s) of radiological monitoring equipment necessary for the work, (3) advising the FTL and RCT of changes in monitoring or PPE and (4) advising personnel on work-site evacuation and reentry. The radiological

engineer may have to perform evaluations specified in MCP-425, "Survey of Materials for Unrestricted Release and Control of Movement of Contaminated Material" (INEEL 1997d) for release of materials with inaccessible surfaces. The radiological engineer may also have other duties to perform as specified in the project HASP, or in the *INEEL Radiological Control Manual.*

7.2.7 Environmental Restoration Quality Engineer

The ER quality engineer provides guidance on work-site quality issues, when requested. The ER quality engineer observes work-site activities and verifies that work-site operations comply with quality requirements pertaining to these activities. The ER quality engineer identifies activities that do not comply or have the potential for not complying with quality requirements and suggests corrective actions.

7.2.8 Sample Management Office

The INEEL Sample Management Office (SMO) has the responsibility of obtaining necessary laboratory services as required to meet the needs of this project. They will also ensure that data generated from samples meet the needs of the project by validating all analytical laboratory data to resident protocol, and ensuring that data is reported to the project in a timely fashion as required by the FFA/CO.

The SMO contracted laboratory will have overall responsibility for laboratory technical quality, laboratory cost control, laboratory personnel management, and adherence to agreed-upon laboratory schedules. Responsibilities of the laboratory personnel include preparing analytical reports, ensuring CoC information is complete, and ensuring all quality assurance/quality control (QA/QC) procedures are implemented in accordance with SMO generated task order statements of work and master task agreements.

7.2.9 Integrated Environmental Data Management System Technical Leader

The Integrated Environmental Data Management System (IEDMS) Technical Leader will interface with the PM during the preparation of the SAP database required by MCP-227, "Sampling and Analysis Process for Environmental Management Funded Activities" (INEEL 1997a). This individual also provides guidance on the appropriate number of field quality control samples required by the QAPjP. The numbers used by the project are unique from all others ever assigned by IEDMS. The preparation of the plan database, along with completion of the SMO request services form, initiates the sample and sample waste tracking activities performed by the SMO.

7.2.10 Waste Generator Services

Waste Generator Service (WGS) personnel provide support to the project in the area of waste segregation, storage, and disposal. For this project a WGS engineer will be assigned to take care of all waste generated from the tasks conducted for this project.

7.2.11 Occasional workers

All persons who may be on the project work site, but are not part of the field team, are considered occasional workers for the purposes of this project (e.g., surveyor, or other crafts personnel not assigned to the project). A person shall be considered "onsite" when they are present in or beyond the designated support zone. Occasional workers per 29 Code of Federal Regulations (CFR) 1910.120/1926.65, and must meet minimum training requirements for such workers as described in the OSHA standard and any additional site-specific training as identified in the project HASP.

All occasional workers, including contractor and subcontractor employees who are not working on the project, or nonessential representatives of DOE and/or state or federal regulatory agencies, may not proceed beyond the support zone without receiving job-specific HASP training, signing a job-specific HASP training acknowledgement form, receiving a full safety briefing, wearing the appropriate PPE, and providing proof of meeting the minimum training requirements specified in the project HASP. A fully trained job-site representative (such as the FTL, JSS, HSO, or a designated alternate) will escort occasional workers at all times while on the task site.

7.2.12 Visitors

All visitors with official business at the project task site, including contractor and subcontractor personnel, representatives of DOE, and/or state or federal regulatory agencies, may not proceed beyond the support zone without receiving project-specific HASP training, signing a HASP training acknowledgement form, receiving a full safety briefing, wearing the appropriate PPE, and providing proof of meeting the minimum training requirements as specified in the project HASP. A fully trained job-site representative (such as the FTL, JSS, or HSO, or a designated alternate) will escort visitors at all times while at the work site.

A casual visitor to the work site is a person who does not have a specific task to perform or other official business to conduct at the work site. **Casual visitors are not permitted at the job site(s) for the Group 4 perched water well drilling.**

8. WASTE MANAGEMENT

This section is intended to briefly summarize the project specific waste management plan (DOE/ID-10749, 2000) and to familiarize field personnel with the various wastes to be encountered on the job site. For a full discussion of the waste management for this project, see "Waste Management Plan for Operable Unit 3-13, Group 4 Perched Water" (DOE/ID-10749). Remediation waste generated during the OU 3-13 Group 4 perched water well drilling project may include the following:

- Contaminated personal protective equipment, wipes, bags and other refuse
- Contaminated drilling and sampling equipment
- Well development fluids
- Non-contaminated paper and plastic trash
- Aqueous decontamination solutions
- Unused, unaltered sample material, drill cuttings
- Soil drill cuttings
- Used sample containers and disposable sampling equipment
- Aqueous and liquid organic analytical wastes
- Analytical debris (e.g. glassware, pipettes, etc.)

The disposition and handling of waste for this project will be consistent with the *Waste Certification Plan for the Environmental Restoration Program* (INEEL 1996a). However, field personnel will be responsible for the initial segregation of waste based on drilling conditions and/or location. The segregation of waste will play an important role in the reduction of waste generated by this project. As such, waste minimization and segregation are discussed below.

8.1 Waste Minimization and Segregation

Waste minimization for this project will be primarily achieved through design and planning to ensure efficient operations and that wastes are not generated unnecessarily. Sampling and drilling personnel will be responsible for segregating conditional industrial wastes from contaminated wastes. All contained wastes will be marked with information regarding the area from which it was generated. This will facilitate proper classification of the wastes following receipt of sampling and analysis results.

The segregation of waste will be based upon the area of drilling and whether the waste was produced while drilling in a zone of saturation. For example, waste generated while drilling well sets 1 through 3 should be contained, since these wells are located in areas of known vadose contamination. For the Phase I well sets only waste generated from saturated strata requires containment, since any contaminants present are associated with perched and aquifer water. Table 8-1 provides a summary of the waste segregation strategy.

Field personnel will be responsible for segregating contaminated liquid wastes from non-liquid wastes and contaminated combustible solid wastes from noncombustible solid wastes. All wastes containers will be labeled with information regarding the characteristics of the wastes (e.g., liquid, combustible solid, noncombustible solid, etc.). Decontamination fluids from potentially contaminated equipment will be contained separately from decontamination fluids generated from non-contaminated areas.

Sampling and drilling equipment and debris that cannot be decontaminated in accordance with the field procedure will be contained for subsequent management. Depending on the nature of the contaminated equipment, it may be stored for subsequent use at other contaminated sites, subjected to a more rigorous decontamination, or disposed of as a waste.

Table 8-1. Waste segregation summary.

Well Set	Waste	Disposition	Justification
Phase I well sets	Dry drill cuttings	Dispose at site	No known or anticipated surface contamination
	Saturated drill cuttings	Containerize in drums or polytanks	Known contamination present in perched and aquifer water
Phase II well sets	Dry drill cuttings	Dispose at site	No known or anticipated surface contamination
	Saturated drill cuttings	Containerize in drums or polytanks	Known contamination present in perched and aquifer water
Decon fluids	Generated from unsaturated zone	Dispose to ground as directed	No known or anticipated surface contamination
	Generated from saturated zone	Containerize in drums or polytanks	Known contamination present in perched and aquifer water
	Well development fluid	Containerize in drums or polytanks	Known contamination present in perched and aquifer water
	Purge water	Containerize in drums or polytanks	Known contamination present in perched and aquifer water

9. HEALTH AND SAFETY

A project specific Health and Safety Plan (INEEL/EXT-2000-00257) has been prepared to define the health and safety requirements for this project. This health and safety plan (HASP) establishes the procedures and requirements used to minimize health and safety risks to persons working on the Operable Unit (OU) 3-13 Group 4, Snake River Plain Aquifer (SRPA) project. The HASP meets the requirements of the Occupational Safety and Health Administration (OSHA) Standard, 29 Code of Federal Regulations (CFR) 1910.120/1926.65, *Hazardous Waste Operations and Emergency Response* (HAZWOPER). The document's preparation is consistent with information found in the following references:

- National Institute of Occupational Safety and Health (NIOSH/OSHA/United States Coast Guard (USCG)/U.S. Environmental Protection Agency (EPA) *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities* (NIOSH 1985)

- Bechtel BWXT Idaho, LLC (BBWI), *Safety and Health Manuals*

- *INEEL Radiological Controls Manual and Radiation Protection Manual.*

The HASP complies with the authorized safety basis detailed in INTECs authorized safety basis and "Other Industrial" classification per the applicable preliminary hazard assessment, auditable safety analysis, or safety analysis report, if applicable.

The HASP governs all work support of the OU 3-13, Group 4, Snake River Plain Aquifer Project that is performed by the Idaho National Engineering and Environmental Laboratory (INEEL) personnel and INEEL subcontractors, or employees of other companies. Persons not normally assigned to work at the site, such as representatives of U.S. Department of Energy (DOE), DOE Idaho Operations Office (DOE-ID), the State of Idaho, OSHA, and EPA are considered occasional workers as stated in OSHA 29 CFR 1910.120/1926.65.

Prior to sending this document to the Environmental Protection Agency and the Idaho Department of Health and Welfare (IDHW), the HASP will be reviewed and revised by the health and safety officer (HSO) in conjunction with the field team leader (FTL), and the INEEL environmental restoration (ER) safety, health, and quality assurance (SH&QA) manager, or designee, to ensure the effectiveness and suitability of this HASP.

10. DOCUMENT MANAGEMENT

Section 9.1 summarizes document management and sample control. Documentation includes field logbooks used to record field data and sampling procedures, CoC forms, and sample container labels. The analytical results from this field investigation will be documented in reports and used as input for refining the current conditions for the computer model.

10.1 Documentation

The FTL will be responsible for controlling and maintaining all field documents and records, and for verifying that all required documents to be submitted to INEEL SMO are maintained in good condition. All entries will be made in indelible black ink. Errors will be corrected by drawing a single line through the error, and entering the correct information. All corrections will be initialed and dated.

10.1.1 Sample Container Labels

Waterproof, gummed labels generated from the SAP database will display information such as the unique sample identification number, the name of the project, sample location, and analysis type. Labels will be completed and placed on the containers in the field before collecting the sample. Sample team members will provide information necessary for label completion. Such information may include sample date, time, depth, preservative used, field measurements of hazards, and the sampler's initials.

10.1.2 Field Guidance Form

Field guidance forms verifying unique sample numbers provided for each sample location can be generated from the SAP database. These forms contain the following information:

- Media
- Sample identification numbers
- Sample location
- Aliquot identification
- Analysis type
- Container size and type
- Sample preservation.

10.1.3 Field Logbooks

Field logbooks will be used to record information necessary to interpret the analytical data in accordance with INEEL SMO format, and controlled and managed according to MCP-231, "Logbooks" (INEEL 1996a).

10.1.3.1 Field Team Leader's Daily Logbook. *A project logbook maintained by the FTL will contain a daily summary of the following:*

- All field team activities
- Visitor log
- List of site contacts
- Problems encountered
- Any corrective actions taken as a result of field audits.

This logbook will be signed and dated at the end of each day's sampling activities.

10.1.3.2 Sample Logbooks. Sample logbooks will be used by the sample team(s). Each sample logbook will contain information such as the following:

- Physical measurements
- All QC samples
- Sample information (sample location, sample collection information, analyses requested for each sample, sample matrix)
- Shipping information (collection dates, shipping dates, cooler identification number, destination, CoC number, name of shipper).

10.1.3.3 Field Instrument Calibration/Standardization Logbook. A logbook containing records of calibration data will be maintained for each piece of equipment requiring periodic calibration or standardization. This logbook will contain logsheets to record the date, time, method of calibration, and instrument identification number.

10.1.4 Photographs

It is not anticipated that formal photographic records of the activities under this FSP will be made. Photographs may be taken by field personnel to record general equipment set-ups and installation procedures. A minimum of two copies will be made of any photographs taken during this project. One copy will be placed in the project file. The second copy will accompany other project documents (i.e., field logbooks) to be placed in the ER Document Control and Records Management files.

10.2 Document Revision Requests

Revisions to this, or any referenced document, will follow MCP-230, "Environmental Restoration Document Control Center Interface." (INEEL 1996b). Final changes must also be approved through the supervising agencies since this is a primary FFA/CO document.

11. REFERENCES

40 CFR 230, Code of Federal Regulations, Title 40 Protection of the Environmental, Section 404, Guidelines for Specification of Disposal Sites for Dredge or Fill Material, current revision.

40 CFR 261, Code of Federal Regulations, Title 40 Protection of the Environmental, Section c(3), Identification and Listing of Hazardous Waste, current revision.

40 CFR 141, Code of Federal Regulations, Title 40 Protection of the Environmental, Subchapter D-Water Programs, Part 141--National Primary Drinking Water Regulations, current revision.

49 CFR 171-178, Code of Federal Regulations, Title 49 Transportation, Subtitle B-Other Regulations Relating To Transportation, Chapter I-Research And Special Programs Administration, Subchapter C-Hazardous Materials Regulations, Department of Transportation, current revision.

29 CFR 1910.120/1926.65, Code of Federal Regulations, Title 29 Labor, Subtitle B-Regulations Relating to Labor, Chapter XVII – Occupational Safety and Health Administration, Department of Labor, current revision.

Anderson, S. R., 1991, *Stratigraphy of the Unsaturated Zone and Uppermost Part of the Snake River Plain Aquifer at the Idaho Chemical Processing Plant and Test Reactor Area, Idaho National Engineering Laboratory, Idaho*, USGS Water-Resources Investigations Report 91-4010-IDP-22095.

Bechtel/Babcock & Wilcox LLC (BBWI), 2000a, "Sampling Groundwater," JSA 409, current issue.

BBWI, 2000b, "Installing Lysimeters and Sampling Soil Pore Water," TPR-EM-GW-97, current issue.

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DOE-ID, 1997c, "Comprehensive RI/FS for the Idaho Chemical Processing Plant OU 3-13 at the INEEL-Part B, Feasibility Study Report," U.S. Department of Energy Idaho Operations Office, DOE/ID-10619, November, 1997.

DOE-ID, 1998, "Comprehensive RI/FS for the Idaho Chemical Processing Plant OU 3-13 at the INEEL-Part B, FS Supplement Report, Revision 2," U.S. Department of Energy Idaho Operations Office, DOE/ID-10619, October, 1998.

DOE-ID, 1999a, "Final Record of Decision Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13," DOE/ID-10660, Revision 0, October 1999.

DOE/ID, 2000a, "*Operation and Maintenance Monitoring Plan for Operable Unit 3-13, Group 4 Perched Water*," DOE/ID-10749, March 2000.

DOE/ID, 2000b, "*Tracer Test Plan for WAG 3, Operable Unit 3-13, Group 4 Perched Water*", DOE/ID-10762, Revision 0, September 2000.

DOE/ID, 2000c, INEEL, 1999, *Health and Safety Plan for Waste Area Group 3, Operable Unit 3-13, Group 4 Post Record of Decision Vadose Zone Well Drilling and Monitoring*, INEEL/EXT-99-00257.

DOE/ID, 2000d, "*Waste Management Plan for Operable Unit 3-13, Group 4 Perched Water*," DOE/ID-10749, Revision 0, September 2000.

DOE-ID, 2000e, "Quality Assurance Project Plan for Waste Area Groups 1, 2, 3, 4, 5, 6, 7, 10, and Inactive Sites," DOE/ID-10587, Revision 6, August 2000.

Environmental Protection Agency (EPA), 1986, "Test Methods for Evaluating Solid Waste," Volume II: Field Manual Physical/Chemical Methods, Chapter 9, current issue.

EPA, 1990, "National Oil and Hazardous Substances Contingency Plan," Federal Register, Volume 55.

EPA, 1993, "Statement of Work for Inorganic Analysis—Multi-media, Multi-Concentration, Contract Laboratory Program," ILM03.0, June, 1993.

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INEEL, 1996a, "Logbooks," MCP-231, current issue.

INEEL, 1996b, "Environmental Restoration Document Control Center Interface," MCP-230, current issue.

INEEL, 1997a, "Sampling and Analysis Process for Environmental Management Funded Activities," MCP-227, current issue.

INEEL, 1997b, "Chain of Custody, Sample Handling and Packaging," MCP-244, current issue.

INEEL, 1997c, "Sample Management," MCP-2864, current issue.

INEEL, 1997e, "Radiation Protection Manual," Manual #15B, current issue.

INEEL, 1997f, "Safety and Health Manual," Manual #14A, current issue.

INEEL, 1998a, "Performing Pre-job Briefings and Post-job Reviews," MCP-3003, current issue.

INEEL, 1998b, "Maintenance Work Control," MCP-2798, current issue.

INEEL, 1998c, "Performing Safety Reviews," MCP-2727, current issue.

INEEL, 1998d, "Calibration Program," MCP-2391, current issue.

INEEL, 1998e, "Field Work at the INEEL," MCP-2725, current issue.

INEEL, 1999a, "Well Construction/Well Abandonment," MCP-226, current issue.

INEEL, 1999b, "Well Construction, Modifications, Compliance, and Management," MCP-3653, current issue.

INEEL, 1999c, "Deficiency Screening and Resolution," MCP-598, current issue.

INEEL, 1999d, "Design and Engineering Change Control," MCP-2811, current issue.

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LITCO, 1994a, "Field Decontamination of Heavy Equipment, Drill Rigs, and Drilling Equipment," SOP 11.4, current issue.

LITCO, 1994b, "Field Decontamination of Sampling Equipment," SOP 11.5, current issue.

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LITCO, 1995, "Waste Area Group 3 Comprehensive Remedial Investigation Feasibility Study (RI/FS) Work Plan," Lockheed Idaho Technologies Company, INEL-95/0056, Revision 2, August 1995.

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USACE, 1994, "Requirements for the Preparation of Sampling and Analysis Plans," EM 200-1-3.

Appendix A

Sampling and Analysis Plan (SAP) Tables

Table A-1. Applicable requirements and documentation.

Document ID	Title
DOE/ID-10587	*Quality Assurance Project Plan for Waste Area Groups 1, 2, 3, 4, 5, 6, 7, 10, and Inactive Sites*
DOE/ID-10746	*Long Term Monitoring Plan for Waste Area Group 3, Operable Unit 3-13, Group 4 Post –Record of Decision Monitoring*
DOE/ID-10749	*Waste Management Plan for Operable Unit 3-13, Group 4 Perched Water (Draft)*
INEEL/EXT-97-00032	*Implementing Project Management Plan for the Idaho National Engineering and Environmental Laboratory Remediation Program*
INEEL/EXT-2000-00257	*Health and Safety Plan for the WAG 3, Operable Unit 3-13, Vadose Zone Well Drilling and Monitoring Project*
MCP-226	Well Construction/Well Abandonment
MCP-227	Sampling and Analysis Process for Environmental Management Funded Activities
MCP-230	Environmental Restoration Document Control Center Interface
MCP-231	Logbooks
MCP-244	Chain of Custody, Sample Handling and Packaging for CERCLA Activities
MCP-444	Characterization Requirements for Solid and Hazardous Waste
MCP-2725	Field Work at the INEEL
MCP-2727	Performing Safety Reviews
MCP-2798	Maintenance Work Control
MCP-2864	Sample Management
MCP-3003	Performing Pre-Job Briefings and Post-Job Reviews
MCP-3480	Environmental Instructions for Facilities, Processes, Materials and Equipment Instruction
MCP-3475	Temporary Storage of CERCAL-Generated Waste at the INEEL
MCP-3653	Well Construction, Modifications, Compliance, and Management
Manual #14A	*Safety and Health Manual*
Manual #15B	*Radiation Protection Manual*
SOP-11.4	"Field Decontamination of Heavy Equipment, Drill Rigs, and Drilling Equipment"
TPR-52	"Field Decontamination of Sampling Equipment"
TPR 56/SOP 11.8	"Groundwater Sampling"
TPR-61	"Soil Sampling"
TPR-79	"Levels of Analytical Method Data Validation"

Appendix B

Sampling and Analysis Tables

Plan Table Number: WAG3 GRP4 PW1
SAP Number:
Date: 08/08/00 Plan Table Revision: 0.0

SAMPLING AND ANALYSIS PLAN TABLE FOR CHEMICAL AND RADIOLOGICAL ANALYSIS

Project: WAG 3 GROUP 4 PHASE I Project Manager: C. J. ROBERTS SMO Contact: J. D. JACKSON

SAMPLE DESCRIPTION						SAMPLE LOCATION				ENTER ANALYSIS TYPES (AT) AND QUANTITY REQUESTED																				
										AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
SAMPLING ACTIVITY	SAMPLE TYPE	MEDIA	COLL TYPE	SAMPLING METHOD	PLANNED DATE	AREA	LOCATION	TYPE OF LOCATION	DEPTH (ft)	A4	AN	AV	AZ	EA	LA	NP	PH	R4	R8	RB	RF	RI	S1	UA					
PWM100	REG	PERCHED WATER	GRAB		03/19/01	INTEC	33-1	PERCHD WATR WEL	89-99	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM101	REG	PERCHED WATER	GRAB		03/19/01	INTEC	33-2	PERCHD WATR WEL	86-106	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM102	REG	PERCHED WATER	GRAB		03/19/01	INTEC	33-3	PERCHD WATR WEL	112-122	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM103	REG	PERCHED WATER	GRAB		03/19/01	INTEC	33-4	PERCHD WATR WEL	98-118	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM104	REG	PERCHED WATER	GRAB		03/19/01	INTEC	37-4	PERCHD WATR WEL	100-110	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM105	REG	PERCHED WATER	GRAB		03/19/01	INTEC	55-06	PERCHD WATR WEL	93-113	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM106	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-1	PERCHD WATR WEL	326-336	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM107	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-1	PERCHD WATR WEL	359-369	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM108	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-2	PERCHD WATR WEL	102-112	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM109	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-3	PERCHD WATR WEL	128-138	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM110	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-3	PERCHD WATR WEL	116-118	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM111	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-4	PERCHD WATR WEL	101-111	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM112	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-4	PERCHD WATR WEL	128-130	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM113	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-5	PERCHD WATR WEL	106-126	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM114	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-6	PERCHD WATR WEL	81-83	1	1		1	1	1	1	1	1	1	1	1	1	1	1					

The sampling activity displayed on this table represents the first six characters of the sample identification number.
The complete sample identification number (10 characters) will appear on field guidance forms and sample labels.

AT1: Am-241
AT2: Anions
AT3: Appendix IX VOAs
AT4: Appendix IX VOAs MS/MSD
AT5: Tc-99
AT6: Metals (TAL)
AT7: Np-237
AT8: Hydrogen Ion (pH)
AT9: Gamma Spectroscopy
AT10: Tritium

AT11: Strontium-90
AT12: Pu Isotopes
AT13: Iodine-129
AT14: Silica
AT15: Uranium Isotopes
AT16:
AT17:
AT18:
AT19:
AT20:

COMMENTS

Plan Table Number: WAG3 GRP4 PW1
SAP Number:
Date: 08/08/00 Plan Table Revision: 0.0

SAMPLING AND ANALYSIS PLAN TABLE FOR CHEMICAL AND RADIOLOGICAL ANALYSIS

Project: WAG 3 GROUP 4 PHASE I

Project Manager: C. J. ROBERTS

SMO Contact: J. D. JACKSON

SAMPLE DESCRIPTION						SAMPLE LOCATION				ENTER ANALYSIS TYPES (AT) AND QUANTITY REQUESTED																				
										AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
SAMPLING ACTIVITY	SAMPLE TYPE	MEDIA	COLL TYPE	SAMPLING METHOD	PLANNED DATE	AREA	LOCATION	TYPE OF LOCATION	DEPTH (ft)	A4	AN	AV	AZ	EA	LA	NP	PH	R4	RB	RB	RF	RI	S1	UA					
PWM115	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-6	PERCHD WATR WEL	117-137	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM116	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-7	PERCHD WATR WEL	102-104	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM117	REG/QC	PERCHED WATER	DUP		03/19/01	INTEC	MW-7	PERCHD WATR WEL	132-142	2	2	2		2	2	2	2	2	2	2	2	2	2	2					
PWM118	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-8	PERCHD WATR WEL	115-125	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM119	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-9	PERCHD WATR WEL	120-130	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM120	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-9	PERCHD WATR WEL	104-106	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM121	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-10	PERCHD WATR WEL	76-78	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM122	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-10	PERCHD WATR WEL	141-151	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM123	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-11	PERCHD WATR WEL	112-113	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM124	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-11	PERCHD WATR WEL	131-136	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM125	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-12	PERCHD WATR WEL	109-119	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM126	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-12	PERCHD WATR WEL	148-150	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM127	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-13	PERCHD WATR WEL	100-105	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM128	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-14	PERCHD WATR WEL	94-104	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM129	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-15	PERCHD WATR WEL	111-131	1	1	1		1	1	1	1	1	1	1	1	1	1	1					

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COMMENTS

Plan Table Number: WAG3 GRP4 PW1
SAP Number:
Date: 08/08/00 Plan Table Revision: 0.0

SAMPLING AND ANALYSIS PLAN TABLE FOR CHEMICAL AND RADIOLOGICAL ANALYSIS

Project: WAG 3 GROUP 4 PHASE I

Project Manager: C. J. ROBERTS SMO Contact: J. D. JACKSON

SAMPLE DESCRIPTION						SAMPLE LOCATION				ENTER ANALYSIS TYPES (AT) AND QUANTITY REQUESTED																				
										AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
SAMPLING ACTIVITY	SAMPLE TYPE	MEDIA	COLL TYPE	SAMPLING METHOD	PLANNED DATE	AREA	LOCATION	TYPE OF LOCATION	DEPTH (ft)	A4	AN	AV	AZ	EA	LA	NP	PH	R4	R8	RB	RF	RI	S1	UA					
PWM130	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-16	PERCHD WATR WEL	97-107	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM131	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-17	PERCHD WATR WEL	182-192	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM132	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-17	PERCHD WATR WEL	264-274	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM133	REG/QC	PERCHED WATER	DUP		03/19/01	INTEC	MW-17	PERCHD WATR WEL	360-381	2	2	2		2	2	2	2	2	2	2	2	2	2	2					
PWM134	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-18	PERCHD WATR WEL	113-123	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM135	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-18	PERCHD WATR WEL	394-414	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM136	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-20	PERCHD WATR WEL	96-106	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM137	REG	GROUND WATER	GRAB		03/19/01	INTEC	MW-20	PERCHD WATR WEL	133-148	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM138	REG	PERCHED WATER	GRAB		03/19/01	INTEC	MW-24	PERCHD WATR WEL	53-73	1	1		1	1	1	1	1	1	1	1	1	1	1	1					
PWM139	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PW-1	PERCHD WATR WEL	100-120	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM140	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PW-2	PERCHD WATR WEL	111-131	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM141	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PW-3	PERCHD WATR WEL	103-123	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM142	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PW-4	PERCHD WATR WEL	110-150	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM143	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PW-5	PERCHD WATR WEL	109-129	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM144	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PW-6	PERCHD WATR WEL	105-125	1	1	1		1	1	1	1	1	1	1	1	1	1	1					

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COMMENTS

Plan Table Number: WAG3 GRP4 PW1
SAP Number:
Date: 08/08/00 Plan Table Revision: 0.0

SAMPLING AND ANALYSIS PLAN TABLE FOR CHEMICAL AND RADIOLOGICAL ANALYSIS

Project: WAG 3 GROUP 4 PHASE I

Project Manager: C. J. ROBERTS SMO Contact: J. D. JACKSON

SAMPLE DESCRIPTION						SAMPLE LOCATION				ENTER ANALYSIS TYPES (AT) AND QUANTITY REQUESTED																	
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SAMPLING ACTIVITY	SAMPLE TYPE	MEDIA	COLL TYPE	SAMPLING METHOD	PLANNED DATE	AREA	LOCATION	TYPE OF LOCATION	DEPTH (ft)	A4	AN	AV	AZ	EA	LA	NP	PH	R4	R8	RB	RF	RI	S1	UA					
PWM145	REG	PERCHED WATER	GRAB		03/19/01	INTEC	USGS-050	PERCHD WATR WEL	357-405	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM146	REG	PERCHED WATER	GRAB		03/19/01	INTEC	USGS-078	PERCHD WATR WEL	84-204	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM147	REG	PERCHED WATER	GRAB		03/19/01	INTEC	USGS-081	PERCHD WATR WEL	26-104	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM148	REG	PERCHED WATER	GRAB		03/19/01	INTEC	BIG LOST RIVERA	PERCHD WATR WEL	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM149	REG	PERCHED WATER	GRAB		03/19/01	INTEC	BIG LOST RIVERB	PERCHD WATR WEL	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM150	REG	PERCHED WATER	GRAB		03/19/01	INTEC	BIG LOST RIVERC	PERCHD WATR WEL	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM151	REG	PERCHED WATER	GRAB		03/19/01	INTEC	SEWG LAGOM TRTA	PERCHD WATR WEL	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM152	REG	PERCHED WATER	GRAB		03/19/01	INTEC	SEWG LAGOM TRTB	PERCHD WATR WEL	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM153	REG	PERCHED WATER	GRAB		03/19/01	INTEC	SEWG LAGOM TRTC	PERCHD WATR WEL	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM154	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PERCOLATN PONDA	PERCHD WATR WEL	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM155	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PERCOLATN POND8	PERCHD WATR WEL	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM156	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PERCOLATN PONDC	PERCHD WATR WEL	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM157	REG	PERCHED WATER	GRAB		03/19/01	INTEC	TANK FARM A	PERCHD WATR WEL	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM158	REG	PERCHED WATER	GRAB		03/19/01	INTEC	TANK FARM B	PERCHD WATR WEL	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM159	REG	PERCHED WATER	DUP		03/19/01	INTEC	TANK FARM C	PERCHD WATR WEL	380-420	2	2	2		2	2	2	2	2	2	2	2	2	2	2					

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COMMENTS

Plan Table Number: WAG3 GRP4 PW1
SAP Number:
Date: 08/08/00 Plan Table Revision: 0.0

SAMPLING AND ANALYSIS PLAN TABLE FOR CHEMICAL AND RADIOLOGICAL ANALYSIS

Project: WAG 3 GROUP 4 PHASE I

Project Manager: C. J. ROBERTS

SMO Contact: J. D. JACKSON

SAMPLE DESCRIPTION					PLANNED DATE	SAMPLE LOCATION				ENTER ANALYSIS TYPES (AT) AND QUANTITY REQUESTED																				
										AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
SAMPLING ACTIVITY	SAMPLE TYPE	MEDIA	COLL TYPE	SAMPLING METHOD		AREA	LOCATION	TYPE OF LOCATION	DEPTH (ft)	A4	AN	AV	AZ	EA	LA	NP	PH	R4	R8	RB	RF	R1	S1	UA					
PWM160	REG	PERCHED WATER	GRAB		03/19/01	INTEC	CENTRAL SET B	PERCHD WATR WEL	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM161	REG	PERCHED WATER	GRAB		03/19/01	INTEC	CENTRAL SET C	PERCHD WATR WEL	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM162	REG	PERCHED WATER	GRAB		03/19/01	INTEC	1B	PERCHD WATR WEL	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM163	REG	PERCHED WATER	GRAB		03/19/01	INTEC	1C	PERCHD WATR WEL	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM164	REG	PERCHED WATER	GRAB		03/19/01	INTEC	2B	PERCHD WATR WEL	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM165	REG	PERCHED WATER	GRAB		03/19/01	INTEC	2C	PERCHD WATR WEL	380-420	1	1		1	1	1	1	1	1	1	1	1	1	1	1					
PWM166	REG	PERCHED WATER	GRAB		03/19/01	INTEC	33-2	LYSIMETER	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM167	REG	PERCHED WATER	GRAB		03/19/01	INTEC	33-2	LYSIMETER	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM168	REG	PERCHED WATER	GRAB		03/19/01	INTEC	33-5L	LYSIMETER	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM169	REG	PERCHED WATER	GRAB		03/19/01	INTEC	A68	LYSIMETER	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM170	REG	PERCHED WATER	GRAB		03/19/01	INTEC	A69	LYSIMETER	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM171	REG	PERCHED WATER	GRAB		03/19/01	INTEC	BIG LOST RIVERA	LYSIMETER	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM172	REG	PERCHED WATER	GRAB		03/19/01	INTEC	BIG LOST RIVERB	LYSIMETER	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM173	REG	PERCHED WATER	GRAB		03/19/01	INTEC	BIG LOST RIVERC	LYSIMETER	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM174	REG	PERCHED WATER	GRAB		03/19/01	INTEC	SEWG LAGON TRTA	LYSIMETER	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					

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COMMENTS

Plan Table Number: WAG3 GRP4 PW1
SAP Number:
Date: 08/08/00 Plan Table Revision: 0.0

SAMPLING AND ANALYSIS PLAN TABLE FOR CHEMICAL AND RADIOLOGICAL ANALYSIS

Project: WAG 3 GROUP 4 PHASE I

Project Manager: C. J. ROBERTS SMO Contact: J. D. JACKSON

SAMPLE DESCRIPTION						SAMPLE LOCATION				ENTER ANALYSIS TYPES (AT) AND QUANTITY REQUESTED																				
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SAMPLING ACTIVITY	SAMPLE TYPE	MEDIA	COLL TYPE	SAMPLING METHOD	PLANNED DATE	AREA	LOCATION	TYPE OF LOCATION	DEPTH (ft)	A4	AN	AV	AZ	EA	LA	NP	PH	R4	R8	RB	RF	RI	S1	UA					
PWM175	REG	PERCHED WATER	GRAB		03/19/01	INTEC	SEWG LAGON TRTB	LYSIMETER	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM176	REG	PERCHED WATER	GRAB		03/19/01	INTEC	SEWG LAGON TRTC	LYSIMETER	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM177	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PERCOLATN PONDA	LYSIMETER	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM178	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PERCOLATN PONDB	LYSIMETER	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM179	REG	PERCHED WATER	GRAB		03/19/01	INTEC	PERCOLATN PONDC	LYSIMETER	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM180	REG	PERCHED WATER	GRAB		03/19/01	INTEC	TANK FARM A	LYSIMETER	45	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM181	REG	PERCHED WATER	GRAB		03/19/01	INTEC	TANK FARM B	LYSIMETER	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM182	REG	PERCHED WATER	GRAB		03/19/01	INTEC	TANK FARM C	LYSIMETER	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM183	REG	PERCHED WATER	GRAB		03/19/01	INTEC	CENTRAL SET B	LYSIMETER	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM184	REG	PERCHED WATER	GRAB		03/19/01	INTEC	CENTRAL SET C	LYSIMETER	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM185	REG	PERCHED WATER	GRAB		03/19/01	INTEC	1B	LYSIMETER	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM186	REG	PERCHED WATER	GRAB		03/19/01	INTEC	1C	LYSIMETER	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM187	REG	PERCHED WATER	GRAB		03/19/01	INTEC	2B	LYSIMETER	120-140	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM188	REG	PERCHED WATER	GRAB		03/19/01	INTEC	2C	LYSIMETER	380-420	1	1	1		1	1	1	1	1	1	1	1	1	1	1					
PWM189	QC	WATER	FBLK		03/19/01	INTEC	QC	FIELD BLANK	N/A	4		4		4	4	4		4	4	4	4	4		4					

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COMMENTS

Plan Table Number: WAG3 GRP4 PW1 | SAMPLING AND ANALYSIS PLAN TABLE FOR CHEMICAL AND RADIOLOGICAL ANALYSIS | Page 7 of 7

SAP Number:

Date: 08/08/00 | Plan Table Revision: 0.0 | Project: WAG 3 GROUP 4 PHASE I | Project Manager: C. J. ROBERTS | SMO Contact: J. D. JACKSON

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SAMPLING ACTIVITY	SAMPLE TYPE	MEDIA	COLL TYPE	SAMPLING METHOD	PLANNED DATE	AREA	LOCATION	TYPE OF LOCATION	DEPTH (ft)	A4	AN	AV	AZ	EA	LA	NP	PH	R4	RB	RB	RF	RI	S1	UA					
PWM190	QC	WATER	TBLK		03/19/01	INTEC	QC	TRIP BLANK	N/A			4																	
PWM191	QC	WATER	RNST		03/19/01	INTEC	QC	EQUIPMNT RINSTE	N/A	4	4	4		4	4	4	4	4	4	4	4	4	4	4					

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